



Abridged English Translation of JP01030808

Specification

1. Title of the Invention Radial Tire
2. Claims

(1) A radial tire comprising a pair of bead portions, a carcass extending between the pair of bead portions and comprised of one aromatic polyamide fiber cord ply having a cord angle of 90° with respect to a circumferential direction of the tire, and a belt layer arranged on the carcass in a tread portion, a turnup portion of the carcass comprised of the aromatic fiber cord ply is arranged at a state of winding along a bead ring.

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(page 47, lower right column, line 8 from the bottom to page 48, lower left column, line 7)

(Prior Art)

The carcass as an important constitutional element in the heavy duty pneumatic radial tire is constructed by integrally coating carcass cords arranged at intervals side by side with a coating rubber. As the carcass cord, nylon cords, rayon cords, polyester cords and steel cords are frequently used from the old time.

However, when using the nylon cord, rayon cord or polyester cord, the strength of the cord is as low as 5-9 g/d, but also it is required to arrange the carcass as at least two plies. In this case, the carcass becomes thick, so that heat generation of the tire becomes higher, which

results in the deterioration of the tire durability.

Also, in case of using the steel cord, the strength is high, but the reduction of the tire weight is clearly obstructed.

Recently, it is proposed to use an aromatic polyamide fiber cord having a strength considerably higher than that of the above cord of nylon, rayon, polyester or the like as the carcass cord. When the aromatic polyamide fiber cord is used as the carcass cord, it is sufficient to arrange the carcass as one ply, and hence the reduction of the tire weight and the improvement of heat resistance can be established.

(Problems to be solved in the invention)

However, the aromatic polyamide fiber cord is poor in the adhesion property to the coating rubber in view of its molecular structure as compared with the nylon cord, rayon cord, polyester cord and the like. And also, in order to render the carcass into one ply, it is necessary to thicken the cord diameter, and as a result, there is a fear of causing tire troubles such as peeling at the turnup end of the carcass and occurrence of cracks. There is a serious problem that the durability of the tire is largely deteriorated by such troubles.

It is, therefore, an object of the invention to provide a radial tire capable of largely improving the durability by preventing the tire troubles of peeling and cracking at the turnup portion in the carcass using the aromatic polyamide fiber cords as far as possible.

(Means for solution of problems)

The inventors have examined and made studies for solving the above problems and found that when the aromatic polyamide fiber cords are used as a carcass cord constituting the carcass, the troubles based on the peeling and cracking at the turnup end can be largely improved by adopting a structure that the turnup portion of the carcass is wound along the bead ring.

Further, it has been found out that when the turnup portion is fixed to the bead ring by a rubber filler having a high hardness (80-95°), the effect can be more effectively improved to largely improve the tire durability.

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(page 50, upper right column, lines 7 to 16)

4. Brief Description of the Drawings

Fig. 1 is a section view of a heavy duty pneumatic radial tire according to the invention;

Fig. 2 is an enlarged section view of a main part in a turnup structure of a carcass;

Fig. 3 is an enlarged section view of a main part in another turnup structure;

Fig. 4 is a section view of a conventional example;

Fig. 5 is a section view of a comparative example;
and

Fig. 6 is a graph showing results of a test for the tire durability.